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DR. J. HAMILTON CRAWFORD, Brooklyn, *Editor*

DR. CHARLES A. POINDEXTER, New York, *Associate Editor*

CHARLES DENISON, M. D.
UNIVERSITY OF COLORADO
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ESSENTIAL HYPERTENSION

PART II

Symptoms and signs: Essential hypertension is often discovered incidentally in the course of routine physical examination. In other instances, insomnia, restlessness, headache or a vaguely described "nervousness" or "tenseness" may first bring the patient to his physician. In the benign form of essential hypertension organic changes develop slowly and symptoms may be trifling even over a period of 15 to 20 years. The symptoms are usually those of cerebral thrombosis and hemorrhage, coronary sclerosis and thrombosis, or slowly advancing cardiac failure, singly or together. In the malignant form the symptoms of hypertensive encephalopathy, cardiac failure and renal failure are seen in various combinations within six months to three years from onset and progress very rapidly.

The most important and earliest sign is, of course, an elevated diastolic and systolic arterial blood pressure, which persists after the patient has recovered from the excitement of a first examination. Prolonged emotional tension may, however, produce a mild hypertension for days or weeks which, after reassurance or resolution of the emotional conflict, gradually subsides. In such cases the prognosis is better than would be expected at the initial examination.

Palpation of the superficial arteries, ophthalmoscopic examination of the retinal vessels, urinalysis and kidney function tests will make clear the degree of vascular change in these respective regions. Signs will vary because the regional distribution and intensity of arteriolo- and arterio-sclerosis differ widely from patient to patient. Thorough examination of the heart with the necessary special studies will reveal hypertrophy, coronary sclerosis and signs of failure. Prognosis and the nature of therapy will naturally depend upon the system in which breakdown is most threatening.

Every patient with hypertension should have prompt study by means of intravenous urography, and if necessary urine cultures, cystoscopy and retrograde pyelography, in order to detect at the earliest possible moment any correctible abnormalities of the urinary tract. These abnormalities do not always produce characteristic symptoms, and will be overlooked unless these studies are done routinely.

Diagnosis and prognosis: Having decided that hypertension really exists by finding significant and consistent elevation of both systolic and diastolic pressures, the systematic and thorough use of modern diagnostic methods makes it quite possible to rule out very definitely other conditions that must be excluded before the diagnosis of essential hypertension can be made. Most important in this respect are coarctation of the aorta, polycystic kidney disease, congenital anomalies, glomerulonephritis, pyelonephritis and medullary or cortical tumors of the adrenal glands. When hypertension is due to a unilateral renal lesion early diagnosis is particularly important. The success of treatment by unilateral nephrectomy is greatest in young patients and in those whose hypertension has not existed long enough to produce secondary changes in the heart, the peripheral vessels and the other kidney.

The prognosis of true essential hypertension depends upon several factors and requires repeated study at intervals of months or years to gauge accurately the rate at which the sequelae of persistent hypertension are appearing or advancing. The higher the blood pressure, and particularly the higher the diastolic pressure, the graver is the prognosis in general, though this rule is by no means infallible. Certainly, a diastolic pressure of 150 mm. Hg or more, even though that level is reached for only brief periods, presages the malignant phase and is followed before long by severe symptoms. Hypertension in patients below 35 or 40 years of age is more apt to run a malignant course, than is the case with hypertension beginning at age 45 or older. Retinal hemorrhages, exudates and particularly papilledema signify a poor prognosis. The same is true of cardiac failure and renal failure, singly or together. On last analysis, it is the severity and localization of organic arteriolar disease, rather than the blood pressure per se, which indicates prognosis. Women, during the menopause, and obese patients in general often do better under medical treatment than might be expected at first examination.

Treatment: A specific treatment of essential hypertension is still not available despite painstaking effort on the part of clinical investigators for many years. Treatment by medical and by surgical means is at best symptomatic but offers a great deal to the vast majority of patients. An optimistic and understanding attitude on the part of the physician is essential. Patients should not be permitted to know, or become preoccupied with, the inconsequential and spontaneous fluctuations of blood pressure characteristic of this disease. It is far more important that they should be encouraged by reiterated instruction to adopt the "way of life" most apt to ensure longevity.

In the apprehensive, tense, hard-working patient resolution of emotional problems, reassurance, regular and frequent rest or vacation periods, mild exercise suited to the cardiac reserve, and the judicious administration of sedatives such as phenobarbital or chloral hydrate in small doses will usually be helpful symptomatically whether or not the blood pressure itself is greatly lowered. Relaxation may be secured in some patients by warm baths or massage. Alcohol, coffee and tobacco can be used in moderation except by those patients who are sensitive to their effects.

Manipulations of diet have no lasting effect on hypertension with the single reservation that in obese patients general restriction of caloric intake,

producing a gradual loss of weight, is often accompanied by significant lowering of blood pressure and by improvement of symptoms. Restriction of salt intake is indicated only when the edema of cardiac failure appears. In some patients headache may be relieved by sleeping with the head of the bed slightly elevated, or by cautioning them against drinking large volumes of water in brief periods. Nevertheless as the concentrating power of the kidneys becomes less, the 24-hour intake of water may have to be greater than normal to permit a compensatory polyuria.

Drugs of the vasodilator group such as amyl nitrite, nitroglycerin, sodium nitrite and theophylline are useful only during hypertensive paroxysms and even then should be reserved for specific indications or to reduce the blood pressure from a sudden dangerous elevation. Estrogenic preparations are worthy of trial in the hypertension of women coinciding with the climacteric. Bismith subnitrate, insulin-free pancreatic extract, and vegetable substances such as cucurbocitrin or garlic have no significant effect.

Potassium thiocyanate in a daily dose of 0.3 to 1.0 gram carefully adjusted for each patient to produce a blood level not above 10 mg. per 100 cc., is reasonably safe providing blood levels are determined frequently. In 30 to 40 per cent of patients this carefully controlled dosage reduces blood pressure slightly, and relieves headache, insomnia or the general tenseness of which these patients complain so frequently. Its efficacy is less in severe hypertension and diminishes as organic changes progress. The patient should be cautioned to discontinue the drug immediately if skin eruptions, weakness, lethargy, nausea or vomiting appear.

The renin and amine theories of the pathogenesis of essential hypertension have each served as the basis for attempts at specific therapy, but these are still in the purely experimental stage and need not be described fully here. Kidney extracts and a preparation of tyrosinase have reduced hypertension in animals and man, but with both agents local tissue reactions and fever are common. Recent reports ascribe their effects to a nonspecific foreign protein reaction. Such reactions in hypertensive patients are unpredictable as to severity and may be quite dangerous. At the present time it appears that none of these substances are dependable enough for general commercial distribution.

The surgical treatment of true essential hypertension has had a checkered career. The proved usefulness of unilateral nephrectomy in carefully selected cases of "renal" hypertension produced by disease of one kidney has been referred to above. Omentopexy to the denuded surface of the kidneys has not been effective. Subtotal adrenalectomy has been tried and discarded. In general anterior root section and supradiaphragmatic splanchnicectomy are not as advantageous as combined lumbodorsal splanchnicectomy. Because so much depends upon the benign or malignant nature of the disease and, particularly, the exact stage at which the operation has been performed, conclusions as to the effect of operation on longevity, kidney function and symptoms have been hard to assess. Skeptics have called attention to the nonspecific effect of laparotomies, e.g. for myoma uteri, on symptoms and even blood pressure of hypertensive patients. Nor has experimental hypertension in dogs been reduced by any of the operations now in vogue. It should be emphasized, however, that a silver clamp on the dog's renal artery is not the same as the arteriolar spasm that characterizes early hypertension in man.

For these and other reasons, physicians generally hesitate to urge operation for patients in the very early, almost asymptomatic stages though greatest effect is obtainable only at this time. Later, when the functional capacity of the kidneys and heart has been reduced, operation is of no avail. In general, patients over 50 years of age are not suitable for operation. Smithwick summarizes the surgical viewpoint as follows, "When the indications for operation are clearly defined it is to be expected that a high percentage of carefully selected patients will benefit, as judged by persistent and significant lowering of blood pressure levels. Regression of eyeground changes, decrease in the size of the heart, improvment in the electrocardiogram, improvement of renal function and relief of symptoms are noted in certain cases, and present additional ways of evaluating the results of surgery. Furthermore, time may show that life expectancy is increased. There can even now be no doubt of such an increase in cases of malignant hypertension and in patients with severe retinitis who have been subjected to adequate surgery before renal and cardiac functions have been seriously impaired. At the present time, surgery appears to offer the greatest hope for these patients."

The mortality from operative treatment by a surgeon experienced in this field is small. It seems likely that sympathectomy should be recommended much more often and much earlier than is the case now even though available evidence indicates that this operation represents symptomatic rather than etiologic treatment. A closer consultative relationship between physician and surgeon is essential. In the meantime, however, vigorous search for more specific, direct and rational therapy should be continued.

E. M. Landis, M.D.
Charlotteville, Virginia

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